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EMMANUEL GOLDSTEIN

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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UNIVERSAL CITY STUDIOS, INC., PARAMOUNT PICTURES CORPORATION,. METRO-GOLDWYN-MAYER STUDIOS INC., TRISTAR PICTURES, INC., COLUMBIA PICTURES INDUSTRIES, INC., TIME WARNER ENTERTAINMENT CO., L.P., DISNEY ENTERPRISES, INC., and TWENTIETH CENTURY FOX FILM CORPORATION,

Plaintiffs,

- against -

ERIC CORLEY a/k/a "EMMANUEL GOLDSTEIN"AND 2600 ENTERPRISES, INC.,

Defendants

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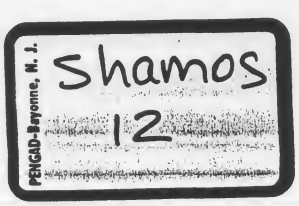
00 Civ. 0277 (LAK)

DECLARATION OF OLEGARIO L. CRAIG IN SUPPORT OF DEFENDANTS' CROSS-MOTION TO VACATE THE PRELIMINARY INJUNCTION

I, OLEGARIO L. CRAIG, declare under penalty of perjury under the laws of the United States of America, that the foregoing is true and correct:

1. My name is Olegario L. Craig. Since 1995 I have been employed as a network administrator and software specialist for the Department of Computer Science at the University of Massachusetts. In the course of my work I regularly maintain, evaluate, optimize, and



troubleshoot the performance of networked computers and associated hardware and software. I have extensive experience working with many computer and network operating systems, file sharing protocols, and client-server applications.

2. I submit this Declaration in support of defendants' cross-motion to vacate the preliminary injunction issued in this case on January 20, 2000, and to counter certain factual errors committed by Robert W. Schumann in his Second Supplemental Declaration, specifically with respect to errors made by Mr. Schumann in dealing with compression technologies and data transfer speeds over computer networks.

3. Mr. Schumann claims that: (a) A 5 Gigabyte file can be transferred in under 7 minutes over a 100Mbps ethernet connection; (b) Most colleges and universities provide 100Mbps ethernet connections to all dorm rooms; and (c) A DVD image file can be compressed (using technologies such as DivX) to a much smaller size than the original.

4. First, in order to assess Mr. Schumann's transfer-speed claims, I performed the following tests (precise details are attached hereto as Exhibit. 1):

a. Transfer of a 1.5 Gigabyte file over the Internet, using two computers connected via multiple T1 (minimum 24 megabit-per-second) infrastructure to the Cable & Wireless (formerly BBN) Internet backbone. This took 7 hours and 46 minutes for the 1.5GB transfer. Extrapolation to a 5 Gigabyte file yields an estimated time of 28 hours, 29 minutes.

b. Transfer of a 1.5 Gigabyte file between two computers over a standard LAN (Local Area Network) using 10 megabit-per-second switched ethernet took 2 hours and 15 minutes. A 5GB transfer would therefore take roughly 7 and a half hours.

c. Transfer of a 1.5 Gigabyte file over a state-of-the-art high-speed LAN built on 100 megabit-per-second fast-switched ethernet took 13 minutes and 6 seconds for the 1.5GB

file; the 5GB file would take approximately 48 minutes.

d. Transfer of a 1.5 Gigabyte file over a single direct "crossover" connection between two computers, using 100 megabit-per-second networking. This "absolute-best-case possible" scenario still took 4 minutes and 2 seconds to effect the 1.5GB transfer; so even after cutting all extraneous network devices and IP routing out of the connection, a 5GB file download would take approximately 13 minutes. I must point out that one would never see this type of direct connection on a normal LAN; it is usually done only to connect two otherwise isolated computers or, (as here), to absolutely minimize network overhead during data transfer testing.

5. It should be noted that these tests were performed using a protocol (FTP) that is optimized for fast and reliable file download. Using a network disk scheme (such as Windows(tm) filesharing or NFS) would only increase the protocol overhead, as these methods need to exchange far more information between computers in order to keep the physical disk synchronous with the networked computer's idea of its file system. This can only result in slower file transfer speeds.

6. Based on these tests, I conclude that Mr. Schumann's claims of a seven-minute transfer time (for a DVD imagefile comprising or exceeding 5 Gigabytes) are not reproducible even under the most favorable conditions. Moreover, my trials were conducted using high-speed computers and networking resources available to me in a state-of-the-art facility devoted specifically to computing research. These conditions are unlikely to be available to many outside such an establishment. Internet connections, even on computers (such as those in trial "(a)," above, that could be considered "neighbors" in terms of Internet topology, would be significantly slower.

7. Mr. Schumann mentions compression technologies, and claims that a DVD compressed to 1.2 Gigabytes using DivX or similar technologies would be downloadable in under 2 minutes. While that figure, like his others, does not reflect reality, it is perhaps more important to note that the compressed file would not be comparable in quality to the original DVD. DivX (like any other compression technology capable of such a feat) is a "lossy" compression method; it is not possible to decompress its output and recover the data discarded during the compression process. Doing so would be -- please pardon a pithy comparison -- akin to producing authentic fresh-squeezed orange juice from frozen concentrate.

8. Lastly, the University of Massachusetts is typical of most higher educational institutions in that it provides 10 megabit-per-second (not 100Mbps) connections to selected residence halls. Even Harvard – which certainly has at least as much money to spend on such matters as UMass – uses 10Mbit networking to its dorms. (See for instance http://www.fas.harvard.edu/computing/comp2004/AdmittedStudents04.pdf). This is analogous to the configuration I used for trial (b), above, where I estimated a time of 7.5 hours for a 5GB download under ideal conditions. Those "ideal conditions" will never exist in our dorms; under even a moderate network usage load, I estimate that file transfers of that size would take at least two or three times that long. Moreover, my tests did not reflect the possibility of multiple clients attempting to download at the same time, which would swamp the source computer's network connection as well as putting a heavy drain on its CPU, memory, and disk bus. Three or four simultaneous download attempts could easily stretch the time required for each to complete into a matter of days.

9. It should also be noted that UMass, like other institutions, does not provide the dorms with the full benefit of its Internet bandwidth. The residence halls' network is separated

from the backbone that connects the rest of the campus to the Internet; all of the dorms (those lucky enough to be networked) combined cannot use more than 10Mbps of our 24Mbps Internet connection bandwidth. There are no plans to replace the dormitory networking infrastructure with 100Mpbs technology, which is significantly more costly and has more stringent limitations in terms of individual cable lengths and shielding requirements.

Dated: Amherst, MA
June 14, 2000

OLEGARIO L. CRAIG